
BWSR FEATURED PLANT

NORTHERN WILD RICE *Zizania palustris* L.

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Wild rice (Minnesota's State Grain) has great significance culturally, economically, and ecologically to Minnesota. The grain contains a high amount of protein, providing an important food source for migratory waterfowl, while the stems provide habitat for invertebrates, that in turn provide food for fish species. Unfortunately, wild rice beds have been in decline over recent decades; the causes are not fully understood but likely include competition from invasive species (carp, hybrid cattail, etc.), climatic conditions, boat traffic, pollutants (sulfates, nitrogen, sediment, etc.), and hydrologic alterations. Multiple agencies and conservation groups are focusing on ways to preserve wild rice beds, decrease impacts, and re-plant where possible. The following information summarizes the Identification, habitat/range, uses, and planting recommendations for wild rice.



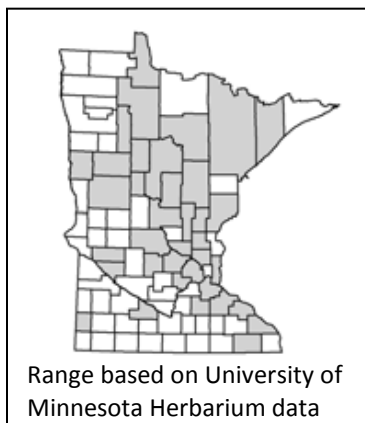
Wild Rice in a restored wetland

Identification

Wild rice is an annual plant that grows to about 2-3 meters tall. It has a large panicle inflorescence with separate male (lower) and female (upper) portions. It is generally cross pollinated as the female flowers develop first. Plants are in flower from June to September. Leaves ranging from 1-3 cm wide float on the surface of the water before emerging on upright stems.

Habitat/range

The largest populations of wild rice (and highest grain yields) are in the central and northeastern parts of the state. It is believed that populations growing in the northern part of the state are genetically different than plants growing along the Mississippi River in the southern half of the state. Both varieties were likely spread widely by Chippewa and Dakota tribes as a staple food source. Historical accounts and herbarium collections show that it had a very wide distribution across Minnesota. Eastern wild rice *Zizania aquatica* is also found in the state, likely from introduction.



More shatter resistant varieties have been developed to allow for combine harvest of wild rice; though markets have declined in recent years (in 1986, 95% of wild rice in the American market was harvested in California). Shattering from wind has been a problem for Minnesota rice farmers and research has been underway to develop more shatter resistant varieties. This has been controversial, as native tribes consider the plant sacred, and feel that it

Wild rice is not directly related to Asian rice (*Oryza sativa*), though they are close cousins, both in the tribe Oryzae

should not be selected for individual traits. Due to competition from California, many Minnesota rice paddies are being converted back into natural wetlands.

Wild rice can grow on the edges of lakes, ponds, slow moving rivers and marshes. On larger lakes, wild rice typically establishes in bays and sheltered areas as too much wave action from wind or boats can inhibit growth. Wild rice tends to grow in water levels from six-inches to three feet, with less seed produced at deeper water levels.

Wild rice tends to thrive in areas where there is gently flowing clear water.

Uses

Wild rice contains high amount of the amino acids Lysine and methionine, as well as B vitamins: thiamine, riboflavin, and niacin, making it very nutritious for humans and wildlife. The grain is used in casseroles, soups, salads, breakfast cereals, and baked goods. The dense stems of wild rice beds provide habitat for a wide variety of wildlife species and provide important foraging areas for fish. The species is occasionally used as an ornamental plant in ponds and water gardens.

Planting Recommendations

Wild rice can establish on a variety of substrates ranging from sand to silt and clay. There has been good success re-introducing wild rice into areas with porous soils such as the Anoka Sandplain. Substrates that have deep layers of muck soils may be too soft to promote growth and anchoring of roots. The presence of broad-leaf arrowhead has been a good indicator of areas where wild rice may thrive. Areas with water lilies and pondweeds may also provide suitable habitat; though, excessive plant competition may inhibit establishment. Most seeding on lakes is focused on the wind protected side.



Wild Rice Bed Photo by Angela Anderson

The majority of harvesting is conducted by traditional methods using canoes and harvesting paddles. The harvest is typically conducted around the end of August through the first week of September. It is believed that seed must be stored wet or it will lose germination. As a result, most efforts to re-introduce wild rice have involved seeding shortly after harvest. Due to decomposition, it is not desirable to store seed more than two to three weeks. Seed is commonly hand broadcast (in some cases mechanically) from boats at rates of 6-30 pounds per acre. In some cases sites are seeded over two or three consecutive seasons to ensure establishment. Success rates can vary significantly due to seasonal variability in water levels and weather conditions with a success rate of 50% considered good. A DNR aquatic plant permit is required for planting wild rice on DNR protected waters.

It is recommended to plant wild rice soon after harvest, as amino acids in the grains break down quickly when stored wet

There are private individuals in Minnesota that harvest seed commercially that can assist with supplying and possibly also spreading seed. The advantage of working with private harvesters is that they can coordinate seed collection, storage and shipment to the project site. Current prices for seed vary between 1.5-3 dollars a pound depending on yearly conditions.

Additional References

<http://www.saveourrice.org/index.html>

http://www.dnr.state.mn.us/aquatic_plants/emergent_plants/wildrice.htmlhttp://files.dnr.state.mn.us/fish_wildlife/legislative/reports/20080215_wildricestudy.pdf

<http://www.dnr.state.mn.us/wildlife/shallowlakes/wildrice.html> <http://wrs.umn.edu/alumni/phdgrads/walker/index.htm>

<http://www.saveourrice.org/pdf/LakesWithRice50acres.pdf>